

Borehole

# 60-09-08

Log Event A

## Borehole Information

Farm : <u>U</u>	Tank : <u>U-109</u>	Site Number : <u>299-W18-122</u>
N-Coord : <u>37,977</u>	W-Coord : <u>75,887</u>	TOC Elevation : <u>664.25</u>
Water Level, ft :	Date Drilled : <u>2/28/1974</u>	

## Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>120</u>	

## Borehole Notes:

According to the driller's records, this borehole was not perforated or grouted.

## Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1995</u>	Calibration Reference : <u>GJPO-HAN-3</u>	Logging Procedure : <u>P-GJPO-1783</u>

## Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>11/16/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>118.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>49.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>11/17/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>50.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>0.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>11/17/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>58.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>42.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole  
Log Data Report

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### Analysis Information

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Analyst : P.D. Henwood

Data Processing Reference : P-GJPO-1787

Analysis Date : 7/12/1996

#### Analysis Notes :

This borehole was logged in three log runs; the third log run was conducted as a repeat section from 42 to 58 ft to check for data and depth repeatability of the logging system. The pre- and post-survey field verification spectra show consistent activities, indicating the logging system operated properly during data collection. Gain drifts during data collection were minor and energy versus channel number recalibrations were not required during processing of the data to maintain proper peak identification. The rerun section has been plotted only for the natural gamma logs because there were no man-made radionuclides identified in this depth interval. Calculated concentrations for the natural radionuclides were mostly within the statistical uncertainty of the measurements, indicating very good repeatability of data with depth. A few data points did not repeat in the U-238 and Th-232 logs because of the low count rates and the concentration being below the MDL.

The casing thickness is presumed to be 0.280 inch (in.), on the basis of the published thickness for schedule-40, 6-in. steel casing. Casing-correction factors for a 0.280-in.-thick steel casing were applied during analysis.

Cs-137 is the only man-made radionuclide identified in this borehole. The presence of Cs-137 was measured at less than 1 pCi/g near the ground surface, at two isolated locations (21 and 31 ft), and at the bottom of the borehole.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank U-109.

#### Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.